

WHAT IS CLAIMED IS:

1. A vending machine, comprising:

a plurality of storing means capable of storing a plurality of commodities in an upright state;

gripping means capable of gripping an commodity as remaining in an upright state; and

moving means capable of moving the gripping means up and down, left and right, and back and forth;

wherein, after the commodity located at a taking-out position of a predetermined storing means is gripped by the gripping means and taken out, the gripping means is moved to a carrying-out position, and the gripping of the commodity by the gripping means is released at the carrying-out position so as to perform a carrying-out of the commodity.

2. The vending machine according to claim 1, wherein each storing means comprises an inclined bottom surface for sliding the commodity as remaining in an upright state to the taking-out position, left and right guide portions for controlling a sliding direction of the commodity, and a stopper portion for stopping the commodity at the taking-out position.

3. The vending machine according to claim 2, wherein the inclined bottom surface includes a plurality of rollers lined up in parallel back and forth.

4. The vending machine according to claim 2, wherein the left and right guide portions are provided with a left and right interval so that the commodities line up almost in a line toward the taking-out position.

5. The vending machine according to claim 1, wherein the gripping means comprises at least a pair of left and right fingers for gripping the commodity, and a finger drive mechanism for open-and-close driving the fingers.

6. The vending machine according to claim 5, wherein the drive mechanism includes a left finger drive mechanism and a right finger drive mechanism.

7. The vending machine according to claim 5, wherein the gripping means comprises a bearing member for supporting the under surface of the commodity held by the fingers, and a bearing member drive mechanism for moving the bearing member back and forth.

8. The vending machine according to claim 1, wherein each storing means comprises a retractable lever for preventing the commodity located at the taking-out position to fall down in a direction of the gripping means, and

the gripping means comprises a pushing-down means for pushing downward the retractable bar when it moves downward by itself;

9. The vending machine according to claim 8, wherein the pushing-down means comprises a lever for pushing downward the retractable bar, and a lever drive mechanism for moving the lever back and forth.

10. The vending machine according to claim 1, wherein moving means comprises an up-and-down slider capable of moving up and down, an up-and-down slider drive mechanism for moving the up-and-down slider,

a left-and-right slider provided on the up-and-down slider and capable of moving left and right, a left-and-right slider drive mechanism for moving the left-and-right slider left and right, a back-and-forth slider provided on the left-and-right slider and capable of moving back and forth, and a back-and-forth drive mechanism for moving the back-and-forth slider back and forth.

11. The vending machine according to claim 1, further comprising imaging means provided on the gripping means for imaging the commodity located at the taking-out position and obtaining an image data, and position correction means for performing a positioning of the gripping means before gripping the commodity located at the taking-out position based on the image data obtained by the imaging means.

12. The vending machine according to claim 11, wherein the position correction means includes means for processing the image data obtained by the imaging means and recognizing back-and-forth and left-and-right positions of the commodity located at the taking-out position.

13. The vending machine according to claim 11, further comprising: presence or absence discriminating means for discriminating the presence or absence of the commodity located at the taking-out position based on the image data obtained by the imaging means, and indication means for displaying an out-of-stock indication when the commodity is out of stock.